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ABSTRACT

A study was conducted to analyze the language behavior of mothers of children with normal language development and mothers of children with delayed language development as they interacted with their children to determine if the two groups of mothers provided different linguistic inputs for their children. Two randomly selected groups of children from two to five years of age (14 normal and 14 language delayed) and their mothers participated in the study. The language of both groups of mothers, as they interacted with their children in a structured task situation and an unstructured free play situation, was audiotaped, transcribed, and analyzed. The findings indicated that the mothers of the language delayed children were providing much of the same linguistic information as the mothers of the normal children. These mothers, however, were providing their children with shorter utterances, used fewer questions, and provided fewer utterances signifying acceptance and more signifying rejection than did the mothers of the normal children. (Author/FL)

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LANGUAGE BEHAVIORS OF MOTHERS OF
CHILDREN WITH NORMAL AND DELAYED LANGUAGE

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LANGUAGE BEHAVIORS OF MOTHERS OF CHILDREN WITH NORMAL AND DELAYED LANGUAGE

INTRODUCTION

It has been reported in the earlier literature that young children hear a random sample of adult utterances during the period of development of communication (Bever, Fodor & Wexsel, 1965; MacClay & Osgood, 1959). These conclusions have not been substantiated by more recent investigations with mothers of children with normally developing language. Instead, it has been found that these mothers tend to modify their language while addressing their younger children. Research has suggested that language addressed to children is slower, less complex, more clearly articulated, and has exaggerated stress and intonation (Farwell, 1975). According to Farwell, the adult-child conversation is always concerned with objects, events, or persons occurring in the present so that the child's first utterances are for the most part a coding of current contextual events, and the mother's sentences are short, simple, and perfectly grammatical. Studies have also shown that mothers modify their speech, adding increasing complexity as the child acquires certain abilities (Fraser & Roberts, 1975; Pfuderer, 1969; Snow, 1972). Differences have also been found in mother-child interactions when they were observed in structured or unstructured situations (Bee, Van Egeren, Streissguth, Nyman & Leckie, 1969; Snow, Arlman-Rupp, Hassing, Jobse, Joosten & Vorster, 1976).

In the past decade there has also been an increased recognition of a population of children with low verbal abilities and/or delayed language acquisition. These children have been discussed in relation to maternal behavior occurring within a "culturally deprived" population (Bee, et. al 1969; Hess & Shipman, 1965; 1967). Children with normal intelligence but

low verbal abilities have also been studied within the context of exploring mother-child interactions (Bing, 1963; Jones, 1972). There has been some evidence that language-deficient children who are not markedly retarded have a general deficiency in all representational functions (Morehead & Ingram, 1973).

Studies have shown that the verbal behavior of adults relating to retarded children is influenced by the verbal level of the child (Siegel, 1967). Down's syndrome children have been found to receive a different linguistic input (Buium, Rynders & Turnure, 1974). Researchers have pointed out the need to differentiate adult verbal behavior in interactions with retarded children (Siegel, 1967; Spradlin & Rosenberg, 1964). Cramblit and Siegel (1977) analyzed the language addressed to a language handicapped 4.7 year old boy who appeared to be developing normally in all other areas. They found that simplifications were made by adults that were similar to those used by mothers of normal, but much younger children.

The question then arises as to why some children have delayed language acquisition if there is no demonstrable sensory, emotional or mental impairment hindering the child's development. It is possible that the mother is not providing the appropriate linguistic input for the child to discover the linguistic forms of language. The purpose of this investigation was to analyze the linguistic input of mothers of children with normal language development and mothers of children with delayed language development who reveal no obvious sensory, emotional or mental impairments, and to determine if these two groups of mothers do provide a different linguistic input for their children, although in terms of age and physical development, were

presenting the same verbal cues.

STATISTICAL PROCEDURES

A multivariate analysis of variance was used to compare the linguistic input of the mothers of the normal children to the mothers of the children with delayed language on 14 variables. The following four hypotheses were formulated to compare the two groups of mothers:

Hypothesis A. There is no statistically significant difference on fourteen variables between mothers of children with normally developing language and mothers of children with delayed language, irrespective of situation.

Hypothesis B. There is no statistically significant difference on fourteen variables in a structured situation between mothers of children with normally developing language compared to mothers of children with delayed language development.

Hypothesis C. There is no statistically significant difference on fourteen variables in an unstructured situation between mothers of children with normally developing language compared to mothers of children with delayed language.

Hypothesis D. There is no statistically significant interaction on 14 variables between the scores obtained by mothers of children with normally developing language or mothers of children with delayed language obtained during the structured or unstructured situation.

SUBJECTS

The sample in this study was composed of mother-child pairs, 14 pairs consisting of a language delayed child and his or her mother (Group 1) and

14 pairs consisting of a child with normally developing language and his or her mother (Group 2). Group 1 was composed of randomly selected mothers and their children whose expressive language was developing normally. Group 2 contained mothers and their children who had been identified as delayed in their expressive language by at least one year, based on the expressive scale of the Sequenced Inventory of Communication Development (Hadrlick, Prather, and Tobin, 1975). Both groups of children were determined to be developing normally in the areas of physical, personal/social, intellectual and educational development based on an interview with the mother using the Developmental Profile (Alpern & Boll, 1972). The children ranged in age from 2.0 to 5.0 (See Table 1). Both groups were matched, pair-by-pair, in age within six months and all mother-child pairs were recruited from urban families. The children in the language delayed group had no demonstrable a) visual or auditory impairment, b) emotional problem or c) retardation in development in areas other than language.

METHODOLOGY

The language of the mothers as they interacted with their children in two different situations was collected via audio-tape recording. In the first 15 minutes free play situation (unstructured) each mother and her child were seated on the floor facing each other with toys on the floor between them. The pre-selected toys included a jigsaw puzzle, two toy phones, tea set, playdough, pounding bench, two hand puppets, toy car, toy van, ball and a set of wooden blocks with letters on them. The mother was then instructed to encourage her child to play with the toys.

In the second 10 minute situation (structured) the mother and child were again seated on the floor facing each other. The mother, but not the child,

TABLE 1
AGE AND SEX DISTRIBUTION OF
THE 14 MATCHED PAIRS

Sex	Chronological Age in Years				
	2;5-3;0	3;0-3;5	3;5-4;0	4;0-4;5	4;5-5;0
Male	2	1	4	1	2
Female		2	2		

was able to see a constructed model farm built from a commercially produced set. A comparable set was scattered on the floor between the mother and her child. The mother was asked to help her child build a copy of the farm.

Typewritten verbatim transcriptions of the language of the mother to her child in both situations were then analyzed in order to examine the linguistic input being provided the two groups of children. The criteria chosen for analysis were those aspects which have been found in previous research to be modified by mothers when talking to their children. It was necessary to limit the number of criteria due to the small number of subjects in the study. The child's responses were not evaluated but were included to determine the number of repetitions, expansions, or modeling utterances by the mother.

ANALYSIS PROCEDURES

Four variables were chosen to examine the quantity of language. The total number of utterances for the mother was computed. Utterances were scored by listening to the tapes and marking the transcriptions as indicated by the phonetic cues and pauses in the speech. Run-on sentences were scored as two or more utterances. Phrases and sentence fragments were accepted as utterances if they were characterized by a complete intonation pattern. Therefore, what was scored as a complete utterance was often not a complete sentence as defined by traditional grammar. The mean length of utterance was also computed. Beginning with the second page of the transcript, the ratio of the total number of morphemes spoken in 100 utterances to the total number of utterances (100) was computed (Brown, 1973). Fillers such as "um" and "oh" were not counted. Catenatives, such as "gonna" and "wanna"

were counted as one morpheme. Contractions were also counted as one morpheme. The ratio of the total number of utterances spoken was divided by the total number of minutes taped in order to measure the utterances per minute.

The type of sentence being provided to the child was also considered. All utterances were counted as reports, comments, questions, directions or listed separately in a fifth category, "other". Reports were defined as utterances that occur in the absence of a referent (that object, person, or event being referred to) and were informative utterances directed to a receiver. They did not attempt to influence the behavior of the receiver. Comments were utterances that occur when the referent was manifest and functioned to name or point out objects, persons, or events. Comments frequently accompanied ongoing behavior. They were either directed to a receiver or not, but did not attempt to influence the behavior of the receiver. Utterances interpreted as information seeking were scored as questions. All utterances taking a question form as indicated by intonation or syntax and those utterances serving a directive function but stated in a question form were counted as questions. Directions were defined as those utterances demanding specific responses, including imperatives.

The mother's language was also analyzed in terms of the child's responses to the mother. The total number of exact and partial repetitions by the mother of the child was computed. A count was taken of the total number of expansion repetitions made by the mother. The total number of partial and exact repetitions made by the mother of her own speech was tabulated. A count was made of the number of modeling utterances made by the mother. Modeling utterances were those in which the adult comments on the child's

utterance and in so doing did not repeat any lexical items from the child's utterances (e.g., "Doggie bite'" "He is very mad.").

In order to determine the syntactic complexity the total number of individual verbs in all the utterances were counted. This count included auxiliaries and modals.

The feedback being given by the mother to her child was also analyzed. The total number of acceptance utterances made by the mother was counted. These utterances were those made by the mother explicitly indicating acceptance of what the child said or did (e.g., "That's right." "Yes, that's a ball."). The total number of rejection utterances was counted. These utterances definitely gave evidence of rejecting what the child said or did (e.g., "No, that's not a ball." "Stop that.").

All measures were scored by three independent listeners. The scorers were given a sample audio-tape to transcribe. Each of the scorers transcribed the sample tape with a discrepancy between scorers of only 18 words out of a total of 403 after transcription. Therefore, of the fourteen characteristics used to measure the language of the mothers, it was felt unnecessary to establish scorer reliability for the objective measures of total number of utterances, mean length of utterance, utterances per minute, and the total number of verbs.

In scoring the total number of reports, comments, questions, and directions on the sample transcript, all utterances had to be assigned to either one of these categories or listed separately in a fifth category, "other". Therefore, a cumulative scorer reliability was established for these four measures based on the total number of utterances in the sample transcript. Reliability

ty was established by dividing the total number of utterances or decisions which had to be made by the total number agreed upon for these utterances. The cumulative reliability was .93 on the sample transcript.

It was also established before the investigation began that there should not be a discrepancy of more than a score of two when computing the totals for mother's repetitions of child's utterances, mother's expansion repetitions of child's utterances, mother's repetitions of self, modeling utterances, acceptance utterances, and rejection utterances. When scoring the sample transcript, none of the scorers varied by more than a score of two on any of the totals for any of these variables. All tapes were then randomly transcribed and analyzed by the scorers without their knowledge as to whether the mother was the mother of a child with normal or delayed language development.

RESULTS

This analysis revealed some statistically significant differences. Table 2 indicates the results of the comparison of the two groups when regardless of situation. In the overall comparison of the two groups when the scores for the two situations were combined, the variables found to be significantly different were mean length of utterance, the number of utterances were questions, the number of utterances which were directions, and the number of acceptance utterances. The mothers of the language delayed children provided shorter utterances, fewer questions, more directions and fewer acceptance utterances.

In the structured situation the variables which were significantly different for the two groups were the mean length of utterance, the number of utterances which were questions, and the number of acceptance utterances.

TABLE 2

RESULTS OF A MULTIVARIATE ANALYSIS OF VARIANCE ON
THE LANGUAGE USED BY MOTHERS OF NORMAL CHILDREN AND MOTHERS
OF LANGUAGE DELAYED CHILDREN, IRRESPECTIVE OF SITUATION

Variable	Mean Mothers of Normal	Mean Mothers of Language Delayed	F
1. Total Number of Utterances	196.7143	209.6071	0.4141
2. Mean Length Utterance	5.0814	4.1914	12.2844**
3. Utterances per Minute	15.9393	16.9321	0.3881
4. Reports	2.0357	1.7143	0.0954
5. Comments	43.6786	43.3214	0.0023
6. Questions	63.1071	50.1786	4.3304*
7. Directions	52.8214	110.2857	7.6748*
8. Mother's Repetition of Child	9.0714	5.6071	4.0113
9. Mother's Repetition Expansion	4.1071	4.3571	0.0376
10. Mother's Repetition of Self	6.1429	8.7143	0.4557
11. Modeling	1.7500	2.8214	1.4005
12. Total Number of Verbs	249.4286	250.8571	0.0026
13. Acceptance Utterances	18.2500	8.8571	9.0356**
14. Rejection Utterances	5.6429	8.5357	2.3671

* $p < .05$

** $p < .01$

Table 3 indicates the results of the comparison of the groups in the structured situation. The mothers of the language delayed provided shorter utterances, fewer questions and fewer acceptance utterances.

The mean length of utterance, the number of utterances which were directions, the number of acceptance utterances and the number of rejection utterances were found to be significantly different for the two groups in the unstructured situation are presented in Table 4. The mothers of the language delayed children provided shorter utterances, more directions, fewer acceptance utterances, and more rejection utterances in this situation.

Table 5 presents the results of the analysis for the language used by the two groups of mothers for interactions. There were no variables with a statistically significant interaction ($p < .05$).

Mean Length of Utterance

Vorster (1975) stated that the utterance length of the speaker is probably the most sensitive and reliable indicator of the language development of the addressee. When comparing the two groups, the mothers of the language delayed children differed significantly ($p < .01$) from the mothers of the normal children. The mean for the mothers of the language delayed was 4.1914 and the mean for the mothers of the normal children was 5.0814, a difference of .89. The mothers of the normal children were providing significantly longer utterances than the mothers of the language delayed.

In the structured situation the two groups differed significantly ($p < .01$). The mean for the mothers of the normal children was 5.4614, and the mean for the mothers of the language delayed was 4.4714. Although the means for both groups indicated they were providing longer utterances in the structured sit-

TABLE 3
RESULTS OF A MULTIVARIATE ANALYSIS OF VARIANCE ON THE
LANGUAGE USED BY MOTHERS OF NORMAL CHILDREN AND
MOTHERS OF LANGUAGE DELAYED CHILDREN IN A STRUCTURED SITUATION

Variable	Mean Mothers of Normal	Mean Mothers of Language Delayed	F
1. Total Number of Utterances	174.2857	178.5714	0.0506
2. Mean Length Utterance	5.4614	4.4714	9.6284**
3. Utterances Per Minute	17.3000	17.8571	0.0898
4. Reports	0.5000	0.4286	0.0345
5. Comments	31.4286	29.4286	0.1325
6. Questions	34.4286	20.6429	7.5510*
7. Directions	72.1429	149.8571	4.0637
8. Mother's Repetition of Child	4.2143	1.7143	3.6087
9. Mother's Repetition Expansion	1.5000	1.6429	0.0428
10. Mother's Repetition of Self	6.6429	6.1429	0.0210
11. Modeling	0.6429	1.7857	3.1456
12. Total Number of Verbs	222.6429	212.8571	0.1247
13. Acceptance Utterances	20.9286	9.2857	8.6269**
14. Rejection Utterances	8.0714	10.2857	0.5256

* $p < .05$
** $p < .01$

TABLE 4
RESULTS OF A MULTIVARIATE ANALYSIS OF VARIANCE
ON THE LANGUAGE USED BY MOTHERS OF NORMAL CHILDREN AND
MOTHERS OF LANGUAGE DELAYED CHILDREN IN AN UNSTRUCTURED SITUATION

Variable	Mean Mothers of Normal	Mean Mothers of Language Delayed	F
1. Total Number of Utterances	219.1429	240.6429	0.6515
2. Mean Length Utterance	4.7064	3.9171	8.1914**
3. Utterances per Minute	14.5786	16.0071	0.6477
4. Reports	3.5714	3.0000	0.0947
5. Comments	55.9286	57.2143	0.0129
6. Questions	91.7857	79.7143	1.1764
7. Directions	33.5000	70.7143	14.9761***
8. Mother's Repetition of Child	13.9286	9.5000	2.8185
9. Mother's Expansion Repetition	6.7143	7.0714	0.0285
10. Mother's Repetition of Self	5.6429	11.2857	1.4148
11. Modeling	2.8571	3.8571	0.5121
12. Total Number of Verbs	276.2143	288.8571	0.1189
13. Acceptance Utterances	15.5714	8.4286	4.7598*
14. Rejection Utterances	3.2143	6.7857	6.2960*

*p < .05

**p < .01

***p < .001

TABLE 5
RESULTS OF A MULTIVARIATE ANALYSIS OF VARIANCE ON THE LANGUAGE
USED BY MOTHERS OF NORMAL CHILDREN AND MOTHERS OF
LANGUAGE DELAYED CHILDREN FOR POSSIBLE INTERACTIONS

Variable	Mean Mothers of Normal	Mean Mothers of Language Delayed	F
1. Total Number of Utterances	-44.8571	-62.0714	0.5498
2. Mean Length Utterance	0.7550	0.5543	0.4089
3. Utterances per Minute	2.7214	1.8500	0.2482
4. Reports	- 3.0714	- 2.5714	0.0874
5. Comments	-24.5000	-27.7857	0.1092
6. Questions	-57.3571	-59.0714	0.0205
7. Directions	38.6429	79.1429	1.1420
8. Mother's Repetition of Child	- 9.7143	- 7.7857	0.6871
9. Mother's Repetition Expansion	- 5.2143	- 5.4286	0.0140
10. Mother's Repetition of Self	1.0000	- 5.1429	3.5080
11. Modeling	- 2.2143	- 2.0714	0.0140
12. Total Number of Verbs	-53.5714	-76.0000	0.4802
13. Acceptance Utterances	5.3571	0.8571	1.4666
14. Rejection Utterances	4.8571	3.5000	0.2150

uation than in the unstructured situation, the difference of .99 indicated that the mothers of normal children had increased their utterance length even more in this situation than the mothers of the language delayed.

There was also a significant difference ($p < .01$) between the two groups in the unstructured situation. The mean for the mothers of normal children in this situation was 4.7064, and the mean for the mothers of the language delayed was 3.9171, a difference of .79 for the two groups. The mothers of the normal children were again providing longer utterances in this situation than the mothers of the language delayed.

When the scores for the two situations were totaled for each group, the number of utterances scored for function as questions was significantly different ($p < .05$) for the mothers of the language delayed children compared to the mothers of the normal children. The mean for the mothers of the normal children was 63.1071 with a mean of 50.1786 for the mothers of the language delayed children, a difference of 12.9. Therefore, the mothers of the normal children were asking significantly more questions than the mothers of the language delayed. In the structured situation the mothers of the normal children asked significantly ($p < .05$) more questions than the mothers of the language delayed. There was a difference in means between the two groups of 13.8, and this difference was large enough to cause the overall score for both situations to be significant.

The difference in the number of directions provided by the mothers of language delayed children and the mothers of normal children differed significantly ($p < .05$) when the two scores for both situations were considered combined for both groups. The differences in the means for the two groups was 57.5 with the mothers of the language delayed providing significantly

more directions. There was a very significant difference ($p < .001$) between the two groups in the number of directions provided in the unstructured situation. The number of directions by the mothers of the language delayed was considerably higher than for the mothers of the normal children. The difference of means for both groups was 37.2. The mothers of the language delayed children provided over twice as many directions as the mothers of the children with adequate language development in a free play situation. Not only did the mothers of the language delayed children give more directions in the task-oriented, structured situation, but they were also extremely directive in the free play situation.

When the scores for the two situations were totaled, the mothers of the normal children differed significantly ($p < .01$) in the number of acceptance utterances provided by the mothers. The mean number of acceptance utterances for the mothers of the normal children was 18.2500, and the mean for the mothers of the language delayed was 8.8571. In the structured situation the two groups differed significantly ($p < .01$). The mean for the mothers of normal children was 20.9286 with a mean of 9.2857 for the mothers of the language delayed. Therefore, in this situation the mothers of the normal children provided over twice as many acceptance utterances as the mothers of the language delayed children. The two groups differed significantly ($p < .05$) in the unstructured situation. The mean for the mothers of the normal children was 15.5714 with a mean of 8.4286 which is almost twice as many acceptance utterances by the mothers of normal children.

Although the two groups did not differ significantly in the number of rejection utterances used when the two situations were combined or in the structured situation, there was a significant difference ($p < .05$) in the number of rejection utterances used in the unstructured situation. The

mothers of the language delayed children used more than twice as many rejection utterances as the mothers of the language delayed.

DISCUSSION

This investigation compared the linguistic behavior of mothers of children with delayed language with mothers of children developing normally in language. The findings of this study indicated that the mothers of the language delayed children were providing much of the same linguistic information as the mothers of the normal children. However, there were differences in the mean length of utterance, the number of questions used, the number of directions given, and the amount of acceptance and rejection provided. These differences may be the result of the mothers adjusting their speech to the language abilities of their children (Brown, Salerno & Sachs, 1972; Snow, 1972; Phillips, 1973) and would, therefore, be positive verbal input patterns. Further research is needed with a larger population in order to confirm that these differences are consistent. Future research should also explore other possible differences, such as semantic complexity, which have not been considered in this study. It should be emphasized that this study is descriptive and, consequently, no conclusions as to cause-effect can be drawn. These variables may or may not be of importance either positively or negatively.

The findings of this study indicated that the mothers of the language delayed children were providing these, seemingly normal children with shorter utterances. Perhaps, the children from an early age had shown a delay in language development. Realizing the children were not ready for longer utterances, the mothers were not increasing the length of their utterances. Future research should focus on longitudinal studies to try to determine the interaction process that is taking place.

The mothers of the language delayed were extremely more directive than the mothers of the normal children. This may also be an appropriate modification by the mothers when talking to their language delayed children. Imperatives are quite frequent in mother's speech to young children (Brown, Salerno & Sachs, 1972; Snow, 1972). Researchers have found that parents addressed the most directives to the least linguistically mature children. Thus, the greater number of directives in the speech addressed to the delayed children may be due to their less mature language abilities.

The mothers of the language delayed also used fewer questions than the mothers of the normal children in the structured situation. Frequency of questions in adult-child speech has been found to be positively correlated with greater linguistic maturity (Nelson, 1973). The mothers would be expected to be providing fewer questions considering the child's level of linguistic development.

A significant difference was found in the amount of acceptance and rejection provided by the mothers of the language delayed. The mothers of the normal children were providing significantly more acceptance utterances in both situations. Even in the unstructured situation the mothers of the language delayed used twice as many rejection utterances as the mothers of the language delayed.

This difference may be the most significant variable in the mother's verbal input to their children. Nelson (1973) found that at age 2.0 a strong pattern emerged which suggested that mothers who are highly directive interfere with the process of vocabulary building. She suggested that the directive or command which was only significant in relation to vocabulary at age 2.0 reinforces the notion that the effect of this characteristic is to restrict

the child's concept formation by substituting the mother's concept selection for the child's. A mother may accept or reject her child's language proposals. The mother may believe that she must "teach" the child the right words. The child's language proposals may not match the mother's concepts or his/her words may be difficult to understand, and the mother may not be tuned in to his/her speech system. Again, we cannot pinpoint what is happening in this interaction process. However, Wulbert, et. al. (1975) pointed out that research has suggested that what is essential to the development of language is a dynamic verbal interchange where the mother gives positive responses to the child's attempts to use verbal communication and also modifies her own verbal behavior to meet the child's ability to respond.

Future longitudinal studies would help to determine the interaction process that is taking place and what influence these differences may be having on the children with delayed language. Studies could be carried out to see if the maternal style changes as the language increases or if the mothers of the language delayed children demonstrate the same differences when placed with normal children. Through these studies we could gain further knowledge which could lead to suggestions for parents and for preschool programming for these parents and children. For example, teachers could through direct involvement of the parents, model those behaviors that seem to facilitate the development of language. Mothers could be encouraged to allow the child to experience his/her environment and thus develop concepts about the world through his/her own experience. Mothers need to know how to structure their interactions so that both the parent and child can mutually succeed and reinforce each other.

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